

R3P-PEO
G11D-Alpers
18P→S SNP
R42X
Q43R-idiopathic
 sporadic Parkinsons
Q44X
Q45R - Epilepsy
49Q→E SNP
Q50X
ΔGlu 43-55 -male
 infertility
Q53X

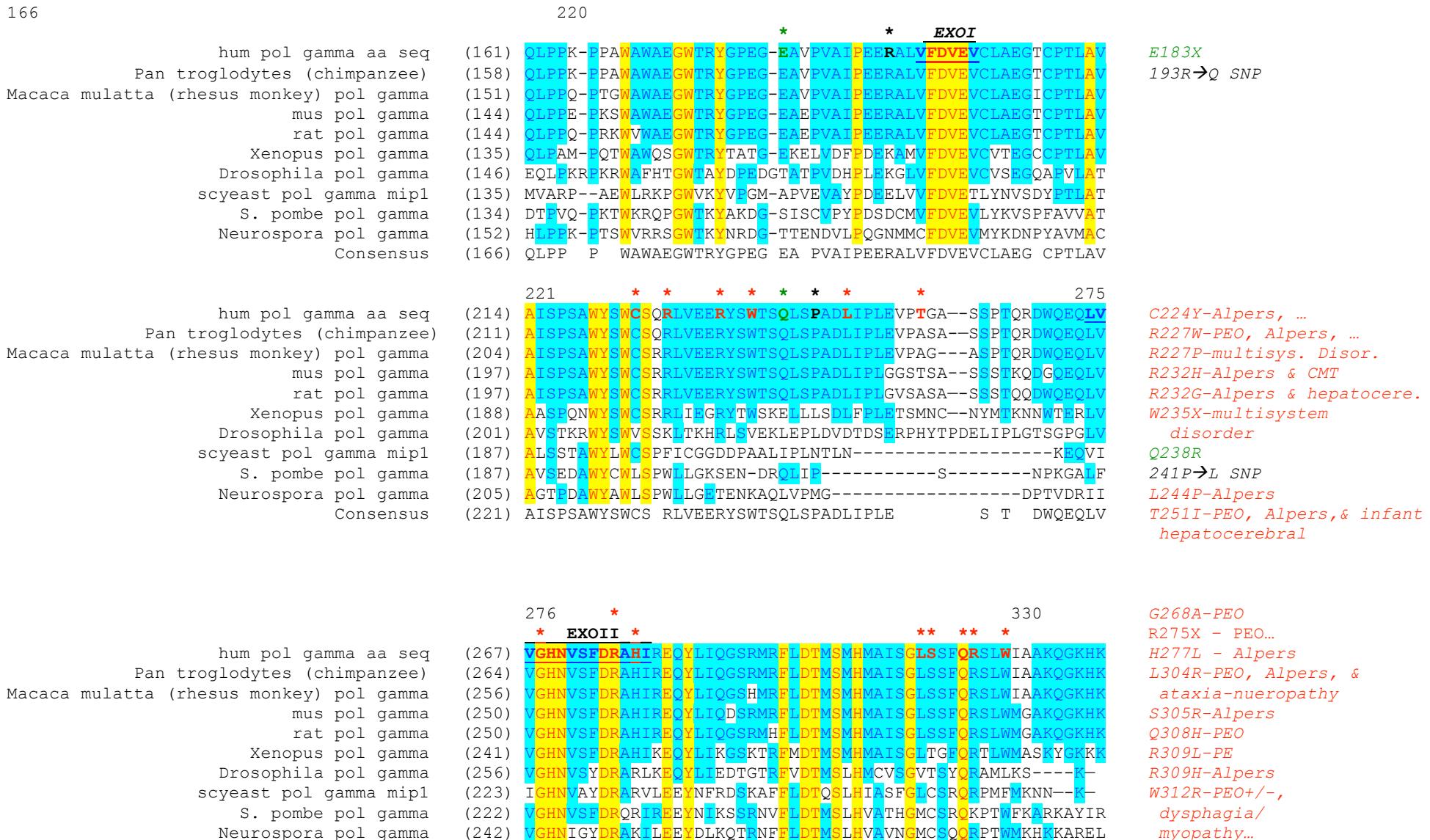
*H110Y-hearing loss, resp.
failure, & failure to
thrive*
W113G
D136E-Epilepsy
*A143V-Alpers, respir.
enzyme chain def.*

RED=Published

Blue=Unpublished

Black=SNP

GREEN=from http://www.ncbi.nlm.nih.gov/SNP/snp_ref.cgi?locusId=5428



hum pol gamma aa seq
 Pan troglodytes (chimpanzee)
 Macaca mulatta (rhesus monkey) pol gamma
 mus pol gamma
 rat pol gamma
 Xenopus pol gamma
 Drosophila pol gamma
 scyeast pol gamma mip1
 S. pombe pol gamma
 Neurospora pol gamma
 Consensus

331 * * * * 385
 (322) VQ--**PPTKQGQKSQR**KARRG--PAISSWD**WLDISSLVNSLAEVHRLYVGGPPLKE**
 (319) VQ--**PSTKQGQKSQR**KARRG--PAISSWD**WLDISSLVNSLAEVHRLYVGGPPLKE**
 (311) VQ--**GSTKQGQKSQR**KARRG--PAISSWD**WLDISSLVNSLAEVHRLYVGGPPLKE**
 (305) TO--**QSTKRGQKSQRK-ANG**--PAISSWD**WMDISSLVNSLAEVHRLYVGGPPLKE**
 (305) TO--**HPTKRGQKSQKN-ANG**--PAISSWD**WMDISSLVNSLAEVHRLYVGGPPLKE**
 (296) GL--**QEVKQHIIKKTRSNFSG**--SP**ISSWDVNLSINN**LADVHNLYVGGPPLKE
 (305) -----KE-----PA**AEDLGVTEQSPLNLSLVEVHRLYCGGDTLSKE**
 (274) -----K**KEAEVESEVHPEISIEDYDDPM**INVSALNSLK**DVAKFHCK-IDLDKT**
 (277) S**SETSETSEDDDSFSFDDYQ**--NYLKQEPWIAHSSVNSLK**DVAKFHCN-ITLDKS**
 (297) REKA**EHESASVELQEVLQGCSLT**EEADLV**VDKSSINBLRDVAQFHLN-VKIDKD**
 (331) Q TK G**QKKSQR** G PAISSWD**WLDISSLVNSLAEVHRLYVGGPPLKE**

324P→S SNP
 S332V
 T326fs61X-Alpers
 W347_L356del-Alpers

hum pol gamma aa seq
 Pan troglodytes (chimpanzee)
 Macaca mulatta (rhesus monkey) pol gamma
 mus pol gamma
 rat pol gamma
 Xenopus pol gamma
 Drosophila pol gamma
 scyeast pol gamma mip1
 S. pombe pol gamma
 Neurospora pol gamma
 Consensus

386 * * * * 440
 (373) PRELFVKG**C**T**MKDIRENFQDLM**Q**YCAQDVWA**THEVFQQQ**PLFLERC**PHP**VTLACM**
 (370) PRELFVKG**T**M**KDIRENFQDLM**Q**YCAQDVWA**THEVFQQQ**PLFLERC**PHP**VTLAGM**
 (362) PRELFVKG**T**M**KDIRENFQDLM**Q**YCAQDVWA**THEVFQQQ**PLFLERC**PHP**VTLAGM**
 (355) PRELFVKG**S**MRD**IENFQDLM**Q**YCAR**D**VWA**F**EVFQQQ****PLFLERC**PHP**VTLAGM**
 (355) PRELFVKG**S**MRD**IENFQDLM**Y**ECARD**D**VWA**F**EVFQQQ****PLFLERC**PHP**VTLAGM**
 (347) ARELFVKG**S**MSD**IRTEFQEL**MY**RCALDVQA**HEVFQQ**PLFLERC**PHP**VTLAGM**
 (340) PRNIF**VVEGTLEQVRQS**Q**SLTNYCASDV**AT**HRILRVLY**PLYA**ERF**PHP**ASLAGM**
 (321) DRDFF**ASTDKSTI**EN**FQKLVNYCATDV**TA**SQVDEIFPVFLKKCPH**V**SFLAGL**
 (329) KRDDF**ASLKEPI**IQ**QLNEIT**TY**YCABHTYS**IQ**VKKVFPQFLEVCPHP**AT**FSAM**
 (351) RD**VFAETDRNV**I**LNQLD**LT**TYYCAB**Q**VQH**Q**VVFENFLGVC**CPH**VSAAL**
 (386) PRELFVKG M DIRENFQDLM YCA DVWAT**THEVFQQQLPLFLERC**PHP**VTLAGM**

R374X -Alpers
 G380D -PEO
 392L→V SNP
 L392V-muscle weakness,
 optic atrophy
 R417T - Alpers
 C418R - Alpers
 L424Gfs28X-PEO
 Alpers
 G426S - Epilepsy...

hum pol gamma aa seq
 Pan troglodytes (chimpanzee)
 Macaca mulatta (rhesus monkey) pol gamma
 mus pol gamma
 rat pol gamma
 Xenopus pol gamma
 Drosophila pol gamma
 scyeast pol gamma mip1
 S. pombe pol gamma

441 * * * * 495 *
 (428) LEMGVSY**L**PV**NQ**-NW**ERYL**A**EAQGT**T**EELQREM**K**SLMD**AN**DACQ**LLSG**ERYKE**
 (425) LEMGVSY**L**PV**NQ**-NW**ERYL**A**EAQGT**T**EELQREM**K**SLMD**LANDACQ**LLSG**ERY**KD**
 (417) LEMGVSY**L**PV**NQ**-NW**ERYL**A**EAQGT**T**EELQREM**K**SLMD**LANDACQ**LLSG**ERY**KE**
 (410) LEMGVSY**L**PV**NQ**-NW**ERYL**T**EAQNT**T**EELQREM**K**SLMD**LANDACQ**LLSG**ERY**KE**
 (410) LEMGVSY**L**PV**NQ**-NW**ERYL**T**EAQST**T**EELQREM**K**SLMD**LANDACQ**LLSG**ERY**KE**
 (402) LEMGVSY**L**PV**NQ**-NW**ERYL**D**EAQTS**E**ELQREM**K**SLMD**LANDACQ**LLTG**DAY**KE**
 (395) LEMGSAY**L**PV**N**S-NW**ERYI**R**EAQLT**D**SI**A**YH**G**RRAEE**AC**SLL**DD**QYRQ**
 (376) KSLSKC**I**LPT**KLND**W**NDY**I**NSES**SL**YQQSKVQIESKIVQI**IK**DIVL**I**KDPDFYL**
 (384) ISLG**S**V**LPVNH**-SW**TRY**ING**VEEQY**QQ**MIQLVDQK**ISQ**YAEKAKD**I**INTKDTVL**

L428P-Alpers,...
 M430L-PEO
 G431V-PEO
 S433C-PEO, ataxia, ...
 T452X-PEO
 L463F-PEO
 A467T-PEO, SANDO,
 MERRF, & Alpers...
 N468D-PEO
 Y479X

Neurospora pol gamma
Consensus

(406) RHLASVILPVNK-TWDTYIETEA^TY^YLQMLHGVQER^IFT^IMERTLDYKADPEKYL
(441) LEMGVSYLPVNQ NWERYL EAQ TYEELQREMKKSLM LANDACQLLSGERYKE

hum pol gamma aa seq
Pan troglodytes (chimpanzee)
Macaca mulatta (rhesus monkey) pol gamma
mus pol gamma
rat pol gamma
Xenopus pol gamma
Drosophila pol gamma
scyeast pol gamma mip1
S. pombe pol gamma
Neurospora pol gamma
Consensus

496 * * * 550

(482) DPWLWDLEWDLQEFKQKKAKKVKK EPATASKLPIEGAGAP GDPMQDQEDLGPCSEE
(479) DPWLWDLEWDLQEFKQKKAKKVKK EPATASKLPIEGAGAP GDPMQDQEDLGPCSEE
(471) DPWLWDLEWDLQEFKQKKAKKVKK EPATASKLPIDGAGAP GDPMQDQEDLGPRSEE
(464) DPWLWDLEWDLQEFKQKKAKKVKK-PASASKLPIEGAGPF GDPMQDQEDPGPPSEE
(464) DPWLWDLEWDLQEFKQKKAKKVKK-TASASKLPIEGAGPF GDPMQDQEDPGPPSEE
(456) DPWLWDLEWDLQEFKQKKAKKVKK-QKKANEAAESVGNKLVEDHNEDPGPPTEK
(449) NLWLWDEDWSVQELKLQPPNRP-----LPTVEIKDS
(431) KDPWLSQLDWTTKPLRLTKNGVPAK-----
(438) KDPWLRLQLDWTPCNLRYRLLKKATQE-----
(460) SDPWLSQLDWSGQEIKMAKP^KG-----
(496) DPWLWDLEWDLQEFKQKKAKKVKK A ASKLPIEGAG GDPMQDQED GP SEE

*Q497H-Ataxia-
Neuropathy
S511N-PEO
G517V- Ataxia-
Neuropathy*

hum pol gamma aa seq
Pan troglodytes (chimpanzee)
Macaca mulatta (rhesus monkey) pol gamma
mus pol gamma
rat pol gamma
Xenopus pol gamma
Drosophila pol gamma
scyeast pol gamma mip1
S. pombe pol gamma
Neurospora pol gamma
Consensus

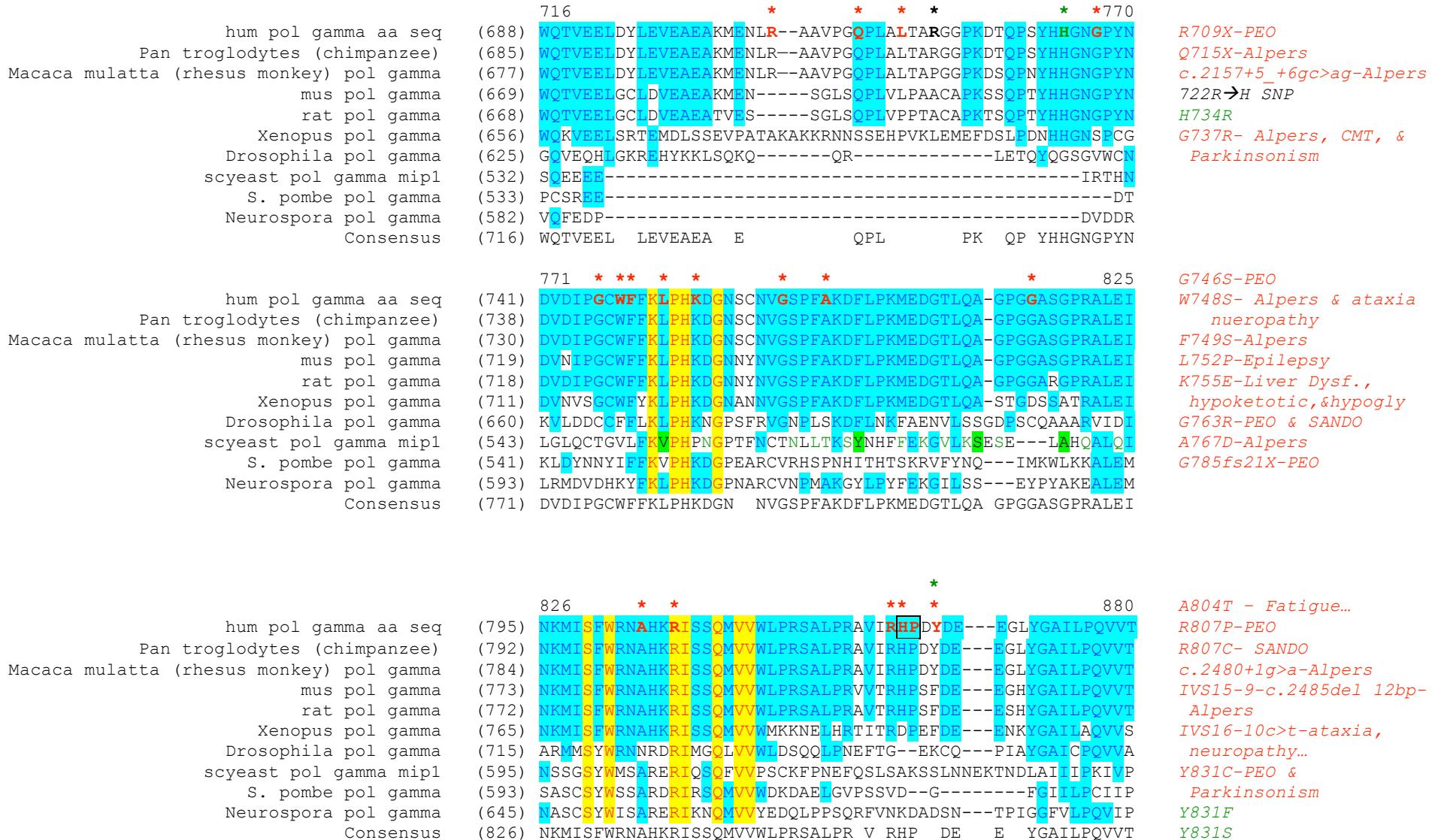
551 * ** * * * 605

(537) EEFQQQDVMA^RA^CLQ^KLKG^TTE^ELL^EKR^PQHILPG^HPG^WY^RRKLC^PR^L-----
(534) EEFQQQDVMA^RA^CLQ^KLKG^TTE^ELL^ELPKRPQHILPG^HPG^WY^RRKLC^PR^L-----
(526) EEFQQQDVMA^RA^CLQ^KLKG^TTE^ELL^ELPKRPQHILPG^HPG^WY^RRKLC^PR^L-----
(518) EELQR^SVT^AHNR^LQQLR^STT^DLL^LPKRPQHILPG^HPG^WY^RRKLC^PR^L-----
(518) EELQ^QNIMAHTR^LQQLK^STT^DLL^LPKRPQHILPG^HPG^WY^RRKLC^PR^L-----
(509) EESRP^SMGKLYLEDLKL^KTLPLL^LPKRPQHILPG^HPG^WY^RRKLC^PR^L-----
(482) GNTPEERRLQAKF^QH^IYDQQALLP^AF^RRPLLP^GYPL^WY^RRKLC^PR^LRKPPAKREDEILED
(456) -----C^EKLPGF^PE^WY^RQ^LF^SK-----
(463) -----VP-----VVPK^WY^RKAYCKT-----
(484) -----DVER^EALN^KLPG^GPQ^WY^RKD^IFVKVPKELSGLDEPD
(551) EE Q A LQ L TT LL^LPKRPQHILPG^HPG^WY^RRKLC^PR^L

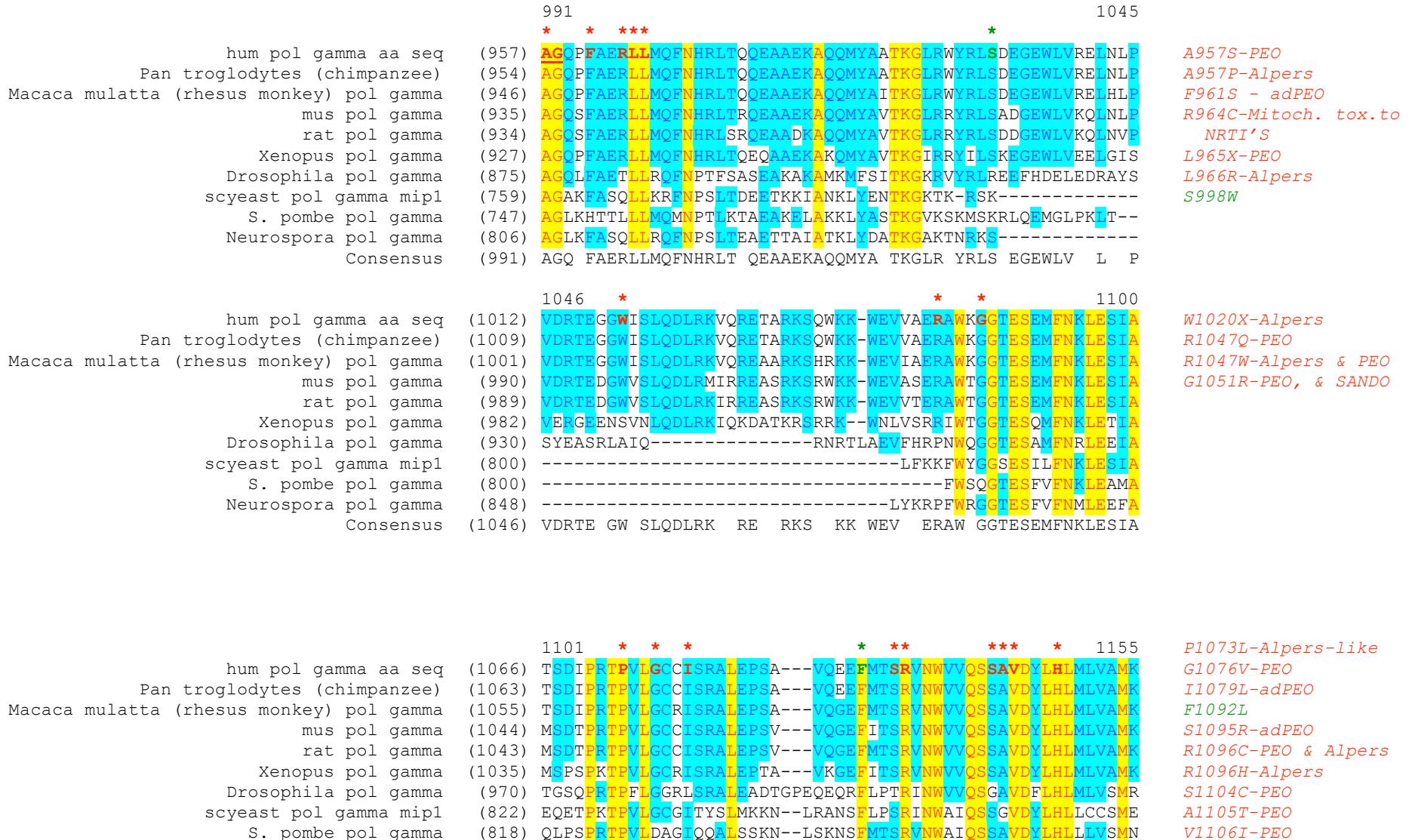
*546R→C,S,G SNP
K561M- dysmorphia,
hypotonia, liver
insufficiencies,
R562Q-PEO
H569Q - Alpers
R574W-PEO+myopathy
dysphagia
& Alpers
R579W-PEO*

Sequence alignment of pol gamma aa seq from various species. The alignment shows conservation across species, with highlighted mutations and associated clinical phenotypes.

	606	*	*	*	*	*	*	*	*	660
hum pol gamma aa seq	(581) ---DDPAWT	PGPSLLSLQMRVTHKLMALTWDGFPLHYSERH	GWGYLVPGRRDNIA	P587L-PEO, Alpers, & inf. hepatocerebral						
Pan troglodytes (chimpanzee)	(578) ---DDPAWT	PGPSLLSLQMRVTHKLMALTWDGFPLHYSERH	GWGYLVPGRRDNIA	P589L - Alpers						
Macaca mulatta (rhesus monkey) pol gamma	(570) ---DDPAWT	PGPSLLSLQMRVTHKLMALTWDGFPLHYSERH	GWGYLVPGRRDNIA	R597W - PEO						
mus pol gamma	(562) ---DDPAWAPGPSLLSLQMRVTHKLMALTWDGFPLHYSDSH	GWGYLVPGRRDNILT	M603L-PEO w/ ptosis							
rat pol gamma	(562) ---DDPAWT	PGPSLLSLQMRVTHKLMALTWDGFPLHYSDSH	GWGYLVPGRRDNILT	L605R - Alpers						
Xenopus pol gamma	(553) ---EDPDWLPGPGIISLQMPILTKLMRILWDGYPLHYSEKH	GWGYLVPGKNNKL	Y614X							
Drosophila pol gamma	(537) ---DEEPWSPGASEISTGMQIAFKLLSCLWEGYPLHYEREQ	GWGFLVFEFSDS	R617C-muscle weakness, exercise intolerance, hearing loss,							
scyeast pol gamma mip1	(474) -----DTVEPKITIKSRIPILFKLSWENS	PVIWSKES	Y614X							
S. pombe pol gamma	(478) -----EKRAVITAKSRLAPIILRALKKKHPLAW	SDTY	R617C-muscle weakness, exercise intolerance, hearing loss,							
Neurospora pol gamma	(520) KEQENRKARHEFINLTVRSHIAEPLLKLSWEGYPLFW	SDQFGWT	Y614X							
Consensus	(606) DDPAW PGPSLLSLQMRVTPKLMALTWDGFPLHY	HGWGYLVPGRRDNL	L623W-Liver Dysf., hypoketotic, &hypogly.							
			R627W-PEO, Alpers, & SANDO							
			R627Q-ataxia-myopathy, Alpers, PEO, ataxia-							
			nueropathy, & MELAS							
			R628Q-in one breast tumor							
	661	*	*	*	*	715				
hum pol gamma aa seq	(633) KLPPTGT	TLESAGWVCPYRAIESLYRKHCIEQGKQQLMPQEAGLAEEFL LTDNSA	I	P648R-PEO+MYOPATHY & SANDO						
Pan troglodytes (chimpanzee)	(630) KLPPTGT	TLESAGWVCPYRAIESLYRKHCIEQGKQQLMPQEAGLAEEFL LTDNSA	I	H659Q						
Macaca mulatta (rhesus monkey) pol gamma	(622) KLPPTGT	TLESAGWVCPYRAIESLYRKHCIEQGKQQLTPQEAGLAEEFL LTDNSA	I	662E→K SNP						
mus pol gamma	(614) EPPVSP	TVESAAVTCPYRAIESLYRKHCIEQGKQQLPQEVDLAAEFL LTDSSA	M	Q666L						
rat pol gamma	(614) ELPVSP	TEESAAVTCPYRAIESLYRKHCIDQGKQQLETQETDAAEFL LTDSSA	M							
Xenopus pol gamma	(605) NNEEEE--E--IIPCPYRAIE	DIAEYSKNKTKDGCLSQHSTIPEEFMLTDNSM								
Drosophila pol gamma	(587) -----EGVDR	IPMEQLIARCPVPEFARLSASKAE								
scyeast pol gamma mip1	(520) -----	YKAKN-----YVLADSV								
S. pombe pol gamma	(522) -----	EIEMLID-QGLV								
Neurospora pol gamma	(571) -----	AETFIQRQMTP								
Consensus	(661) P T E S A V CPYRAIESLYR HCL OGKOO OE LAEEFL LTD A									



		881	935										
hum pol gamma aa seq		*** *** *	* * * * *										
Pan troglodytes (chimpanzee)		AGT	I	TRRAVEPTWL	TASNARPIR	RVGSEI	KAMVQAPP	GYTLV	GADVDS	QELWIAAV			
Macaca mulatta (rhesus monkey) pol gamma		(847)	(844)	(836)	(825)	(824)	(817)	(765)	(650)	(638)	(697)	(881)	
mus pol gamma		TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR	TASNARPIR
rat pol gamma		RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI	RVGSEI
Xenopus pol gamma		KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP	KAMVQAPP
Drosophila pol gamma		GYTLV	GYTLV	GYTLV	GYTLV	GYTLV	GYHLI	GYRLV	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS
scyeast pol gamma mip1		GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS	GADVDS
S. pombe pol gamma													
Neurospora pol gamma													
Consensus													
		881	935										
		936	990										
hum pol gamma aa seq		*	*										
Pan troglodytes (chimpanzee)		LGDAHFAGMHGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
Macaca mulatta (rhesus monkey) pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
mus pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
rat pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
Xenopus pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
Drosophila pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
scyeast pol gamma mip1		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
S. pombe pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
Neurospora pol gamma		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
Consensus		HGCTA	FGWMTLQGPKSFC	DHSKTATT	TVG	ISREHAKI	FNYGRIYG						
		936	990										
G848S-PEO & Alpers, & MELAS													
T849H-Alpers													
T851A- Alpers													
R852C-Alpers													
R853Q-Myocerebrohepat.													
R853W-PEO w/ptosis & Parkinsonism													
V855A-muscle weakness													
A862T-Ataxia & PEO													
N864S-PEO													
R869Q - Myopathy, ataxia, Ptosis, & neuropathy													
E873X- Alpers													
Q879H-Alpers													
T885S-Alpers													
L886P-Alpers													
G888S-Alpers													
A889T-PEO													
E895G-Myopathic MDS													
T914P-PEO, Alpers...													
W918R - PEO													
G923D-PEO													
G923R													
K925Rfs42X-Epilepsy,...													
D930N-Alpers													
H932Y-PEO, & SANDO													
R943C-Myocerebrohep													
R943H-PEO													
R953C-PEO													
Y955C-PEO, & Parkinsonism...													



Neurospora pol gamma (871) EQERFRTPV_LGAGITAEALMSRWVS-KCGYLTSRINWAIQS_SGV_DYLHLIIAMD
Consensus (1101) SD PRTPV_LG C ISRALEPS VQGEFMTSRVNWWVQSSAVDYLHMLVAMK

H1110Y-mtDNA depletion

		Pol C	
		1156 * * * * * * * * * * 1210	
hum pol gamma aa seq	(1118)	WLFEFFAIDGRFCISI HDE VR _L R EEDRYRAA L ALQITNLLTRCMFAYKLGLND	
Pan troglodytes (chimpanzee)	(1115)	WLFEFFAIDGRFCISI HDE VR _L R EEDRYRAA L ALQITNLLTRCMFAYKLGLND	
Macaca mulatta (rhesus monkey) pol gamma	(1107)	WLFEFFAIDGRFCISI HDE VR _L VREEDRYRAA L ALQITNLLTRCMFAYKLGLND	
mus pol gamma	(1096)	WLFEFFAIDGRFCISI HDE VR _L VREEDRYRAA L ALQITNLLTRCMFAYKLGLND	
rat pol gamma	(1095)	WLFEFFAIDGRFCISI HDE VR _L VREEDRYRAA L ALQITNLLTRCMFAYKLGLND	
Xenopus pol gamma	(1087)	WLFEAYDIDGRFCISI HDE VR _L VHSKDRYRAA L ALQITNLLTRCMFA SRL GIQD	
Drosophila pol gamma	(1025)	WLMG---SHVRFCLSF HDE VR _L VKEELSPPKAALAMHITNLMTRSFCSVSRIGIQLD	
scyeast pol gamma mip1	(875)	YIIKKYNLEARLCISI HDE IRFIVSEKD K YRAAMALQISNIWTRAMFCQQMGIN	
S. pombe pol gamma	(871)	HLIKKYYLEARLSLT HDE VR _L SSDKDKYRVAFALQVANLWTRAFFCQRIGIINE	
Neurospora pol gamma	(924)	YLTRRFNLACRLAIT HDE IRYLAEEFD K YHVAMALQIANLWTRVMFAQQVGIQD	
Consensus	(1156)	WLFEFFAIDGRFCISI HDE VR _L VREEDRYRAA L ALQITNLLTRCMFAYKLGLND	

R1128H-Micorcephaly
H1134R-mtDNA depletion
E1136K- mtDNA depletion
R1138C-PEO
1142R→W SNP
1143E→G SNP, PEO, ...
1146R→C SNP
c.3482+2t>c(splice) -
Alpers
M1163R-Alpers
F1164I-PEO
F1164L

		1211 * * * * * * * * * * 1265	
hum pol gamma aa seq	(1113)	LPQSVAFFSAVDIDRCI R KEVTMD C TPSNPTGMERRYGIPQ GEAL DIYQIIELT	
Pan troglodytes (chimpanzee)	(1170)	LPQSVAFFSAVDIDRCI R KEVTMD C TPSNPTGMERRYGIPQ GEAL DIYQIIELT	
Macaca mulatta (rhesus monkey) pol gamma	(1162)	LPQSVAFFSAVDIDRCI R KEVTMD C TPSNPTGMERRYGIPQ GEAL DIYQIIELT	
mus pol gamma	(1151)	LPQSVAFFSAVDIDQC R KEVTMD C TPSNPTGMERRYGIPQ GEAL DIYQIIELT	
rat pol gamma	(1150)	LPQSVAFFSAVDIDQC R KEVTMD C TPSNPTGMERK Y IPQ GEAL DIYQIIELT	
Xenopus pol gamma	(1142)	V F QSVAFFSAVDIDKC R KEVTMD C TPSNNG M EKR Y IPQ GEAL DIYQ I LKV T	
Drosophila pol gamma	(1077)	LPMSV AFFS SV EVD TV R KECTMD C TPSNPHOLRIG Y IQP SQL SVAEAIEKA	
scyeast pol gamma mip1	(930)	LPQN C AFFSQV DID SVIR K KEVN MDC TPSN KTA IPH G EALDIN QLD DKSNSKLGK	
S. pombe pol gamma	(926)	LPQSV AFFS SV DID HV R KDVK MDC TPSN KV PIP G EELT IES VL E KLEQSGQS	
Neurospora pol gamma	(979)	LPQSC AFFS AV DID HV R KEVD MDC TPSN PI IAH G ES I DIF QI LEKGDDAK L D	
Consensus	(1211)	LPQSVAFFSAVDID CLRKEVTMD C TPSNPTGMERRYGIPQ GEAL DIYQIIELT	

L1173fs stop- Alpers
S1176L-PEO
D1184N-PEO
R1187W-?
K1191N-Alpers
K1191R-Myocerebrohep.
D1196N-Myopathy
T1199 ins.a-ataxia, PEO...
G1205A-hearing loss,
failure to thrive, &
ETC complex defic.
Y1210fs-1216stop-
Alpers
c.3643+2t>c(splice) -
Alpers

		1266		1320	
		* * *			
hum pol gamma aa seq	(1228)	KGSLEKRSQPGP	-----		
Pan troglodytes (chimpanzee)	(1225)	KGSLEKRSQPGP	-----		
Macaca mulatta (rhesus monkey) pol gamma	(1217)	KGSLEKRSQPGP	-----		
mus pol gamma	(1206)	KGSLEKRSQPGP	-----		
rat pol gamma	(1205)	KGSLEKRSQPGP	-----		
Xenopus pol gamma	(1197)	KGVL	-----		
Drosophila pol gamma	(1132)	GGNDVSQWDWIKKS	-----		
scyeast pol gamma mip1	(985)	PNLDIDSKVSQYAYNYREPVFEEYNKSYTPEFLKYFLAMQVQSDKRDVNRLDEY			
S. pombe pol gamma	(981)	LEPLEQIQCFVDVKATTSAEITEEDKKNIAYLKAQAFY	-----		
Neurospora pol gamma	(1034)	DSIVPQSQYAPRLENIPYTPRVPMQRRLRERAEGDHQAFLRFIRAQITNSDEEL			
Consensus	(1266)	KGSLEKRSQPGP			
		1321		1375	
hum pol gamma aa seq	(1240)	-----			
Pan troglodytes (chimpanzee)	(1237)	-----			
Macaca mulatta (rhesus monkey) pol gamma	(1229)	-----			
mus pol gamma	(1218)	-----			
rat pol gamma	(1217)	-----			
Xenopus pol gamma	(1201)	-----			
Drosophila pol gamma	(1146)	-----			
scyeast pol gamma mip1	(1040)	LRECTSKEYARDGNNTAEYSLLDYIKDVEKGKRTKVRIMGSNFLDGTKNAKADQRI			
S. pombe pol gamma	(1019)	-----			
Neurospora pol gamma	(1089)	KRIIAETRYSDPYGAFSLASNGRVSGNPHQRHAAVHASTKTAAPSKPSIASRFD			
Consensus	(1321)	-----			
		1376		1430	
hum pol gamma aa seq	(1240)	-----			
Pan troglodytes (chimpanzee)	(1237)	-----			
Macaca mulatta (rhesus monkey) pol gamma	(1229)	-----			
mus pol gamma	(1218)	-----			
rat pol gamma	(1217)	-----			
Xenopus pol gamma	(1201)	-----			
Drosophila pol gamma	(1146)	-----			
scyeast pol gamma mip1	(1095)	RLPVNMPDYPTLHKIANDSAIPEKQLLENRRKKENRIDDENKKLTRKKNTTPME			
S. pombe pol gamma	(1019)	-----			
Neurospora pol gamma	(1144)	SVSQASRIKSVAAGSDEPTIRATKAQGKAMAKASGTLAASKDTVLNVTIKKV			
Consensus	(1376)	-----			

		1431		1485
hum pol gamma aa seq	(1240)	-----		-----
Pan troglodytes (chimpanzee)	(1237)	-----		-----
Macaca mulatta (rhesus monkey) pol gamma	(1229)	-----		-----
mus pol gamma	(1218)	-----		-----
rat pol gamma	(1217)	-----		-----
Xenopus pol gamma	(1201)	-----		-----
Drosophila pol gamma	(1146)	-----		-----
scyeast pol gamma mip1	(1150)	RKYKRVYGGRKAFEAFYECANKPLDYTLETEKQFFNIPIDGVIDDVNLNDKSNYKK		
S. pombe pol gamma	(1019)	-----		-----
Neurospora pol gamma	(1199)	AAPEMAAVPSTSSESKASATTSTTTENATASPSSSNVDAKKTSKTPTHK		
Consensus	(1431)			
		1486		1537
hum pol gamma aa seq	(1240)	-----		-----
Pan troglodytes (chimpanzee)	(1237)	-----		-----
Macaca mulatta (rhesus monkey) pol gamma	(1229)	-----		-----
mus pol gamma	(1218)	-----		-----
rat pol gamma	(1217)	-----		-----
Xenopus pol gamma	(1201)	-----		-----
Drosophila pol gamma	(1146)	-----		-----
scyeast pol gamma mip1	(1205)	KPSQARTASSSPIRKTAKVHSKKLPARKSSTTNRNLVELERDITISREY--		
S. pombe pol gamma	(1019)	-----		-----
Neurospora pol gamma	(1254)	KETEGEPFPSLDDPVIAARLEAVSKTSPGTRASVAAKLDALASFCHASCCGC		
Consensus	(1486)			